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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/988,277	11/19/2001	Masafumi Okazaki	Q66911	8364

7590 07/15/2003

SUGHRUE, MION, ZINN, MACPEAK & SEAS
2100 Pennsylvania Avenue, N.W.
Washington, DC 20037

EXAMINER

PEREZ, GUILLERMO

ART UNIT	PAPER NUMBER
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2834

DATE MAILED: 07/15/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/988,277

Applicant(s)

OKAZAKI ET AL.

Examiner

Guillermo Perez

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 April 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-3, 6, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted Prior Art (AAPA) in view of Maruyama et al. (U. S. Pat. 5,369,322).

AAPA discloses a motor (2) for use with a motorized power steering apparatus (figure 9), in which the motor (2) is fixedly secured to a housing (60), having a gear (3,4) accommodated in the housing (60) to transmit the torque of the motor (2) to a steering wheel. AAPA discloses that the motor (2) comprises:

- a frame (5) of a bottomed cylindrical shape (shown in figures 9-12) having an opening formed in the frame (5);

- a bracket (either 9 or 12) fixed to the opening in the frame (5);

- a rotating element (8) extending through the bracket (either 9 or 12) and having a rotatable shaft (7) supported by a bearing (either 10 or 11) fixedly mounted on the frame (5) and a bracket side bearing (either 10 or 11) fixedly mounted on the bracket (either 9 or 12);

a stationary element (6) fixedly attached to the frame (5) at a location around an outer periphery of the rotating element (8) and having a stator winding (18) wound around there;

a rotation sensor (15) provided on the bracket (12) at one side of the bracket side bearing (11) for detecting a rotational angle of the rotating element (8), the rotation sensor (15) of the resolver type comprising:

- a rotor (45) fixedly mounted on the shaft (7) and
- a stator (46) arranged on the periphery of the rotor (45); and

a plurality of sensor signal wires (24) connected with the rotation sensor (15) for supplying and receiving signals to and from the rotation sensor (15).

AAPA discloses that the rotation sensor (15) comprises a stator (46) fixedly secured to the bracket (12) and a rotor (45) fixedly secured to the shaft (7). In a resolver type sensor, a change in the magnetic field of the stator caused in accordance with rotation of the rotor is detected for sensing the rotational angle of the rotating element.

AAPA discloses a wire connection board (14) provided at one side of the stationary element (6) near the bracket side bearing (either 10 or 11). AAPA discloses that the wire connection board (14) is connected with the stator winding (18) and has annular stator side respective phase terminals (21) arranged concentrically around the shaft (7) of the rotating element (8) in a radially spaced apart relation with respect to one another.

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However, AAPA does not disclose that the frame has a frame side, in which the frame side bearing is located. AAPA does not disclose that the rotation sensor is provided at one side of the bracket side bearing near the housing.

Maruyama et al. disclose that the rotating element (33) extends through the bracket (where the bearing 35 is installed) and has a rotatable shaft (31) supported by a frame side bearing (36) fixedly mounted on the frame (2) and a bracket side bearing (35) fixedly mounted on the bracket (where the bearing 35 is installed). Maruyama et al. disclose that the rotation sensor (43) is provided on the bracket (where the bearing 35 is installed), at one side of the bracket side bearing (35) near the housing (21), for detecting a rotational angle of the rotating element (33). Maruyama et al. disclose that the housing (21) covers the rotation sensor (43). The invention of Maruyama et al. has the purpose of improving the detection of the angular position of the rotor.

It would have been obvious at the time the invention was made to modify the motor of AAPA and provide it with the frame and sensor configuration disclosed by Maruyama et al. for the purpose of improving the detection of the angular position of the rotor.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to place the sensor at either side of the motor since it has been held that a mere reversal of the essential working parts of a device involves only routine skill in the art. *In re Einstein*, 8 USPQ 167.

2. Claims 4-5, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA in view of Maruyama et al. as applied to claim 3 above, and further in view of Yamada (U. S. Pat. 5,801,465).

AAPA and Maruyama et al. substantially teach the claimed invention except that they do not show the lead wire side respective terminals being connected with connection portions, which extend in an axial direction from the stator side respective phase terminals. Neither AAPA nor Maruyama et al. disclose that the base is formed with insertion openings, each in the shape of a tapered configuration expanding toward an open end of the base. Neither AAPA nor Maruyama et al. disclose that the respective phase lead wires and the multi-wire cable extend through a single grommet.

Yamada discloses that the lead wire side respective terminals (2,14) are connected with connection portions (5,15), which extend in an axial direction from the stator side respective phase terminals (4,16). Yamada discloses that the base (46) is formed with insertion openings (46a), each in the shape of a tapered configuration expanding toward an open end of the base (46). Yamada discloses that the respective phase lead wires (14) and the multi-wire cable (4,42) extend through a single grommet (41,10). Yamada's invention has the purpose of facilitating the installation, transportation, and wiring assembly operations.

It would have been obvious at the time the invention was made to modify the motor disclosed by AAPA and Maruyama et al. and provide it with the terminal connection configuration disclosed by Yamada for the purpose of facilitating the installation, transportation, and wiring assembly operations.

3. Claims 7-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA in view of Maruyama et al. as applied to claim 1 above, and further in view of Hirose et al. (U. S. Pat. 5,793,132).

AAPA and Maruyama et al. substantially teach the claimed invention except that they do not show the respective sensor signal wires being combined with one another by a sealing material and covered on their outer periphery with a waterproof heat shrinkable tube at one end of the multi-wire cable which is connected with a connector.

Hirose et al. disclose that the plurality of sensor signal wires (32b) is bundled together to form a multi-wire cable (32). Hirose et al. disclose that the respective sensor signal wires (32b) are combined with one another by a sealing material and covered on their outer periphery with a waterproof heat shrinkable tube (32c) at one end of the multi-wire cable (32) which is connected with a connector. Hirose et al. disclose that the respective phase lead wires (32) and the multi-wire cable (31) extend through a single grommet (43). The invention of Hirose et al. has the purpose of improving watertight capabilities and dust protection.

It would have been obvious at the time the invention was made to modify the motor of AAPA and Maruyama et al. and provide it with the multi-wire configuration disclosed by Hirose et al. for the purpose of improving watertight capabilities and dust protection.

4. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA in view of Maruyama et al. as applied to claim 2 above, and further in view of Chestnut et al. (U. S. Pat. 3,558,940).

AAPA and Maruyama et al. substantially teach the claimed invention except that they do not show the positional adjustment of the stator being carried out even after assembling of the motor.

Chestnut et al. disclose that the positional adjustment of the stator can be carried out even after assembling of the motor (through mounting stud means 48). The invention of Chestnut et al. has the purpose of mounting the stator in position.

It would have been obvious at the time the invention was made to modify the motor of AAPA and Maruyama et al. and provide it with the mounting capabilities disclosed by Chestnut et al. for the purpose of mounting the stator in position.

5. Claims 1-3, 6, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tominaga et al. in view of AAPA.

Tominaga et al. disclose a motor (4) for use with a motorized power steering apparatus (1), in which the motor (4) is fixedly secured to a housing, having a gear (29,30) accommodated in the housing to transmit the torque of the motor (4) to a steering wheel (1). Tominaga et al. disclose that the motor (4) comprises:

- a frame (18) of a bottomed cylindrical shape having an opening formed in the frame (18);

- a bracket (21) fixed to the opening in the frame (18);

- a rotating element (17) extends through the bracket (21) and has a rotatable shaft (16) supported by a frame side bearing (23) fixedly mounted on the frame (18) and a bracket side bearing (22) fixedly mounted on the bracket (21);

a stationary element (20) fixedly attached to the frame (18) at a location around an outer periphery of the rotating element (17) and having a stator winding (7) wound around there;

the rotation sensor (8) is provided on the bracket (21), at one side of the bracket side bearing (22) near the housing, for detecting a rotational angle of the rotating element (17), the rotation sensor (8) comprising:

- a rotor (25,26) fixedly mounted on the shaft (16) and
- a stator (27) arranged on the periphery of the rotor (25,26).

Tominaga et al. disclose a wire connection board provided at one side of the stationary element (20) near the bracket side bearing (22). Tominaga et al. disclose that the wire connection board is connected with the stator winding (7) and has annular stator side respective phase terminals arranged concentrically around the shaft (16) of the rotating element (17) in a radially spaced apart relation with respect to one another. Tominaga et al. disclose that the housing covers the rotation sensor (8).

However, Tominaga et al. do not disclose that the rotation sensor is of the resolver type. Tominaga et al. do not disclose a plurality of sensor signal wires connected with the rotation sensor for supplying and receiving signals to and from the rotation sensor. Tominaga et al. do not disclose that the rotation sensor comprises a stator fixedly secured to the bracket and a rotor fixedly secured to the shaft.

AAPA discloses that the rotation sensor (15) is of the resolver type. AAPA discloses a plurality of sensor signal wires connected with the rotation sensor (15) for supplying and receiving signals to and from the rotation sensor (15). AAPA discloses

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that the rotation sensor (15) comprises a stator (46) fixedly secured to the bracket (12) and a rotor (45) fixedly secured to the shaft (7). In a resolver type sensor, a change in the magnetic field of the stator caused in accordance with rotation of the rotor is detected for sensing the rotational angle of the rotating element. AAPA's invention has the purpose of improving the detection of the angular position of the rotor.

It would have been obvious at the time the invention was made to modify the motor of AAPA and provide it with the frame and sensor configuration disclosed by Maruyama et al. for the purpose of improving the detection of the angular position of the rotor.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to place the sensor at either side of the motor since it has been held that a mere reversal of the essential working parts of a device involves only routine skill in the art. *In re Einstein*, 8 USPQ 167.

6. Claims 4-5, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tominaga et al. in view of AAPA as applied to claim 3 above, and further in view of Yamada (U. S. Pat. 5,801,465).

Tominaga et al. and AAPA substantially teach the claimed invention except that they do not show the lead wire side respective terminals being connected with connection portions, which extend in an axial direction from the stator side respective phase terminals. Neither Tominaga et al. nor AAPA disclose that the base is formed with insertion openings, each in the shape of a tapered configuration expanding toward

an open end of the base. Neither Tominaga et al. nor AAPA disclose that the respective phase lead wires and the multi-wire cable extend through a single grommet.

Yamada discloses that the lead wire side respective terminals (2,14) are connected with connection portions (5,15), which extend in an axial direction from the stator side respective phase terminals (4,16). Yamada discloses that the base (46) is formed with insertion openings (46a), each in the shape of a tapered configuration expanding toward an open end of the base (46). Yamada discloses that the respective phase lead wires (14) and the multi-wire cable (4,42) extend through a single grommet (41,10). Yamada's invention has the purpose of facilitating the installation, transportation, and wiring assembly operations.

It would have been obvious at the time the invention was made to modify the motor disclosed by Tominaga et al. and AAPA and provide it with the terminal connection configuration disclosed by Yamada for the purpose of facilitating the installation, transportation, and wiring assembly operations.

7. Claims 7-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tominaga et al. in view of AAPA as applied to claim 1 above, and further in view of Hirose et al. (U. S. Pat. 5,793,132).

Tominaga et al. and AAPA substantially teach the claimed invention except that they do not show the respective sensor signal wires being combined with one another by a sealing material and covered on their outer periphery with a waterproof heat shrinkable tube at one end of the multi-wire cable which is connected with a connector.

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Hirose et al. disclose that the plurality of sensor signal wires (32b) is bundled together to form a multi-wire cable (32). Hirose et al. disclose that the respective sensor signal wires (32b) are combined with one another by a sealing material and covered on their outer periphery with a waterproof heat shrinkable tube (32c) at one end of the multi-wire cable (32) which is connected with a connector. Hirose et al. disclose that the respective phase lead wires (32) and the multi-wire cable (31) extend through a single grommet (43). The invention of Hirose et al. has the purpose of improving watertight capabilities and dust protection.

It would have been obvious at the time the invention was made to modify the motor of Tominaga et al. and AAPA and provide it with the multi-wire configuration disclosed by Hirose et al. for the purpose of improving watertight capabilities and dust protection.

8. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tominaga et al. in view of AAPA as applied to claim 2 above, and further in view of Chestnut et al. (U. S. Pat. 3,558,940).

Tominaga et al. and AAPA substantially teach the claimed invention except that they do not show the positional adjustment of the stator being carried out even after assembling of the motor.

Chestnut et al. disclose that the positional adjustment of the stator can be carried out even after assembling of the motor (through mounting stud means 48). The invention of Chestnut et al. has the purpose of mounting the stator in position.

It would have been obvious at the time the invention was made to modify the motor of Tominaga et al. and AAPA and provide it with the mounting capabilities disclosed by Chestnut et al. for the purpose of mounting the stator in position.

Response to Arguments

Applicant's arguments with respect to claims 1-13 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Guillermo Perez whose telephone number is (703) 306-5443. The examiner can normally be reached on Monday through Thursday and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on (703) 308 1371. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305 3432 for regular communications and (703) 305 3432 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308 0956.

KARL TAMAI
PRIMARY EXAMINER



Guillermo Perez
July 8, 2003